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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,418	11/25/2003	Ian D. Robb	2003-IP-010445U1	2699

7590 09/27/2006

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EXAMINER

CYGAN, MICHAEL T

ART UNIT PAPER NUMBER

2855

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/723,418	<b>Applicant(s)</b> ROBB ET AL.	
	<b>Examiner</b> Michael Cygan	<b>Art Unit</b> 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 21-24, 26-39, 64 and 65 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 21-24, 26-39, 64 and 65 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 21, 22, 26-31, 33-37, 39, 64, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malone (US 7,032,662 B2) in view of Tayebi (US 6,645,769 B2). Malone discloses detecting the flow of hydrocarbon in a subterranean formation by introducing a first tracer into one zone, introducing a second tracer into a second zone, and detecting the tracers downstream, where the tracers have unique characteristics. See column 4 lines 47-59 and column 7 lines 25-52. The tracer may be encapsulated with a nonbiodegradable polymer

such as polyvinylchloride; column 7 lines 25-53. Malone teaches the claimed invention except for the use of fluorescent tags of the claimed type with a fluorescent measurement system.

Tayebi teaches detecting the flow of hydrocarbon in a subterranean formation by introducing a first tracer into one zone, introducing a second tracer into a second zone, and detecting the tracers downstream, where the tracers have unique characteristics. See abstract. The tracers may be fluorescent; see column 7 line 19. A fluorimeter/colorimeter may be used (column 12 lines 6-39). The tracer may be a dye in the blue absorption/emission spectrum; see column 13 lines 27-34. The tracer may be coated (covalently bound) or 100% encapsulated (through polymer emulsion) with a polymer such as a polystyrene which may be in a gel concentrate form, may be selectively degradable, and water insoluble; see columns 7-9.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the fluorescent tracers taught by Tayebi in the invention taught by Malone to form the sensing system, since this would replace the tedious wet chemistry analysis of Malone (column 6 lines 21-53) with a quick fluorescent analysis.

2. Claims 23 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Malone (US 7,032,662 B2) in view of Tayebi (US 6,645,769 B2) as applied to claim 21, further in view of McKay (US 2,932,741). Malone in view of Tayebi teaches the claimed invention except for the use of fluorescein as the fluorescent tracer. McKay teaches the use of fluorescein as the fluorescent tracer in a

subterranean flow rate measurement system for petroleum production; see column 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use fluorescein as taught by McKay as a tracer in the system of Malone to trace fluid flow, since fluorescein possesses a notoriously strong fluorescence.

3. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malone (US 7,032,662 B2). Malone teaches the claimed method except for the method of formation of the polymer. However, the claimed methods of polymer formation are notoriously well known in the art for polymer formation (for instance, it is old in the art to form polystyrene through an organometallic bond-forming reaction using *n*-butyllithium) , and would have been obvious to one having ordinary skill in the art at the time the invention was made.
4. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malone (US 7,032,662 B2) in view of Parrish (US 4,055,399). Malone teaches the claimed method except for multiple tracers in each matrix. Parrish teaches the use of multiple tracers in each injected slug in a subterranean formation; see abstract. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use multiple tracers in each matrix as taught by Parrish in the invention taught by Malone to form the tracer material, since

Parrish teaches that this allows detection of multiple locations with only two types of tracer; see column 2 lines 1-36.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

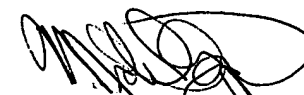
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**MICHAEL CYGAN, PH.D.**  
**PRIMARY EXAMINER**